

Title (en)

FUEL CELL SYSTEM FOR ELECTRIC GENERATION, HEATING, COOLING AND VENTILATION

Title (de)

BRENNSTOFFZELLENSYSTEM ZUR STROMERZEUGUNG, HEIZUNG UND KÜHLUNG UND VENTILATION

Title (fr)

SYSTEME DE PRODUCTION D'ELECTRICITE POUR CHAUFFAGE, CLIMATISATION ET VENTILATION

Publication

EP 0913008 B1 20030910 (EN)

Application

EP 97934233 A 19970716

Priority

- US 9712707 W 19970716
- US 2253296 P 19960719
- US 86698197 A 19970602

Abstract (en)

[origin: WO9804011A2] An energy system that couples or integrates an electrochemical converter, such as a fuel cell for the production of electricity, with a Heating, Ventilation and Cooling (HVAC) system, is disclosed. Waste heat (16) generated by the fuel cell is radiatively, convectively, or conductively directed to a thermal component, such as a heat-actuated chiller (30) or a boiler, of an HVAC system. The HVAC system receives the waste heat to produce a conditioned fluid, e.g. heated or cooled air or water, or steam, for heating, cooling, or industrial uses. The invention provides an improved efficiency energy system capable of providing electricity, heating and cooling, such as for a commercial facility or for residences. Also disclosed is an interface exchange element for convectively coupling an electrochemical converter to the HVAC system. The interface exchange element receives heated exhaust gases generated by the fuel cell and extracts heat therefrom for transfer to a thermal component, such as heat-actuated chiller or a boiler, of an HVAC system.

IPC 1-7

H01M 8/00; **H01M 8/04**

IPC 8 full level

F24D 10/00 (2006.01); **F24F 5/00** (2006.01); **F24J 3/00** (2006.01); **F25B 15/04** (2006.01); **F25B 27/02** (2006.01); **F28D 21/00** (2006.01); **F28F 13/00** (2006.01); **H01M 8/00** (2006.01); **H01M 8/02** (2006.01); **H01M 8/04** (2006.01); **H01M 8/06** (2006.01); **H01M 8/10** (2006.01); **H01M 8/12** (2006.01); **H01M 8/14** (2006.01)

IPC 8 main group level

F24D (2006.01); **F24F** (2006.01); **H02N** (2006.01)

CPC (source: EP KR US)

F24D 5/00 (2013.01 - EP KR US); **F25B 15/04** (2013.01 - EP KR US); **F25B 27/02** (2013.01 - EP US); **F28D 21/0001** (2013.01 - EP US); **F28F 13/00** (2013.01 - EP US); **F28F 13/003** (2013.01 - EP US); **H01M 8/00** (2013.01 - EP US); **H01M 8/02** (2013.01 - KR); **H01M 8/04** (2013.01 - KR); **H01M 8/04007** (2013.01 - EP US); **H01M 8/04074** (2013.01 - EP US); **F24F 2203/026** (2013.01 - EP US); **F28D 2021/0043** (2013.01 - EP US); **H01M 2008/1293** (2013.01 - EP US); **H01M 2008/147** (2013.01 - EP US); **H01M 2300/0008** (2013.01 - EP US); **H01M 2300/0014** (2013.01 - EP US); **H01M 2300/0051** (2013.01 - EP US); **H01M 2300/0074** (2013.01 - EP US); **H01M 2300/0082** (2013.01 - EP US); **Y02A 30/274** (2017.12 - EP US); **Y02B 30/625** (2013.01 - EP US); **Y02E 60/50** (2013.01 - EP US); **Y02P 70/50** (2015.11 - EP US); **Y02P 80/10** (2015.11 - EP US); **Y10S 429/901** (2013.01 - EP US)

Cited by

DE102011108841A1

Designated contracting state (EPC)

AT CH DE DK ES FR GB GR IT LI NL SE

DOCDB simple family (publication)

WO 9804011 A2 19980129; **WO 9804011 A3 19980423**; AT E249686 T1 20030915; AU 3734197 A 19980210; AU 721807 B2 20000713; BR 9710507 A 19990817; CA 2260827 A1 19980129; CA 2260827 C 20020409; CN 1231068 A 19991006; CZ 17899 A3 19990616; DE 69724792 D1 20031016; DE 69724792 T2 20040701; EP 0913008 A2 19990506; EP 0913008 B1 20030910; ES 2207742 T3 20040601; IL 128127 A0 19991130; IL 128127 A 20011125; JP 2000515305 A 20001114; KR 100471501 B1 20050307; KR 20000067922 A 20001125; NO 990217 D0 19990118; NO 990217 L 19990318; NZ 333849 A 20000428; UA 48242 C2 20020815; US 6054229 A 20000425

DOCDB simple family (application)

US 9712707 W 19970716; AT 97934233 T 19970716; AU 3734197 A 19970716; BR 9710507 A 19970716; CA 2260827 A 19970716; CN 97198034 A 19970716; CZ 17899 A 19970716; DE 69724792 T 19970716; EP 97934233 A 19970716; ES 97934233 T 19970716; IL 12812797 A 19970716; JP 50715298 A 19970716; KR 19997000382 A 19990119; NO 990217 A 19990118; NZ 33384997 A 19970716; UA 99020958 A 19970716; US 86698197 A 19970602